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United States Patent [19]**Grouell**[11] **Patent Number:** **5,892,655**[45] **Date of Patent:** **Apr. 6, 1999**[54] **HARD DISK DRIVE HEAT SINK**[75] **Inventor:** William L. Grouell, San Ramon, Calif.[73] **Assignee:** Sun Microsystems, Inc., Mountain View, Calif.[21] **Appl. No.:** 883,847[22] **Filed:** Jun. 27, 1997[51] **Int. Cl.⁶** H05K 7/20[52] **U.S. Cl.** 361/690; 361/704; 361/714;
361/715; 174/16.3; 165/80.3; 165/80.2[58] **Field of Search** 361/687, 690,
361/692, 704, 709, 710, 711; 174/16.3,
16.1; 165/80.2, 80.3[56] **References Cited****U.S. PATENT DOCUMENTS**

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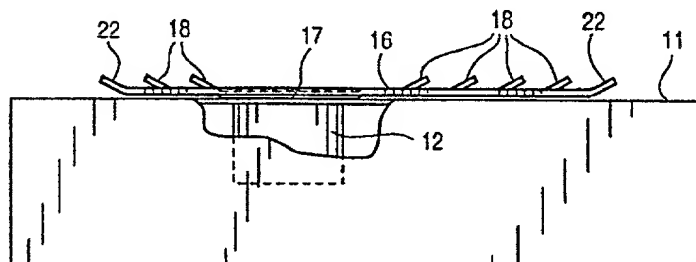
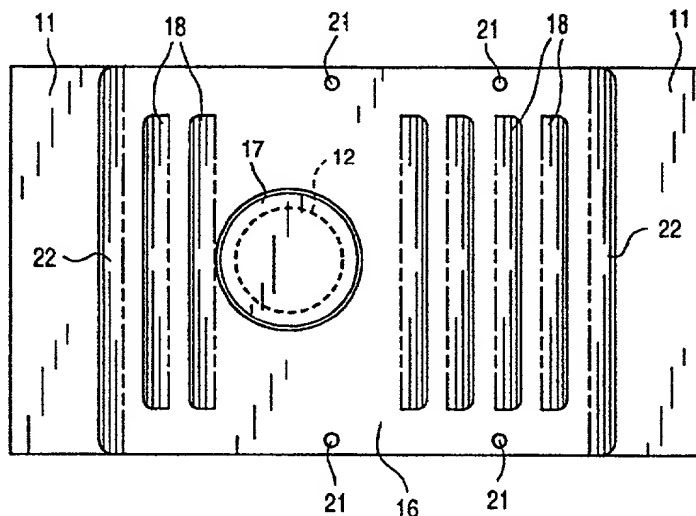
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Primary Examiner—Leo P. Picaro*Assistant Examiner*—Boris L. Chervinsky*Attorney, Agent, or Firm*—Julian Caplan; Flehr Hohbach Test; Albritton & Herbert LLP[57] **ABSTRACT**

A plate formed with louvers and a depression to heat engage a hard disk drive motor is attached to such a drive. Heat from the motor is transferred to the plate. The louvers dissipate heat especially if they are in the path of a blower. The plate also protects the user from contact with drive components if touched during installation or removal of the drive while the drive is connected to a computer while electrically energized.

3 Claims, 1 Drawing Sheet

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